

CLAIMS

1. A multi-chip-type semiconductor device comprising a first semiconductor chip and a second semiconductor chip connected to each other in a package, wherein

said first semiconductor chip comprises a voltage conversion circuit, a plurality of first inter-chip connection portions for connection to the second semiconductor chip, a first serial decoder, external connection terminals led out of the package, and external connection portions for connection to the external connection terminals,

said second semiconductor chip comprises a second serial decoder and a plurality of second inter-chip connection portions for connection to the first semiconductor chip,

bonding wires are provided, for directly connecting the plurality of first inter-chip connection portions and the plurality of second inter-chip connection portions to each other, and

serial data input through the external connection terminals is transmitted to the second serial decoder via the voltage conversion circuit, the first inter-chip connection portions and the second inter-chip connection portions.

2. The multi-chip-type semiconductor device according to claim 1, wherein a high voltage can be applied to the first semiconductor chip, and the second semiconductor chip has a withstand voltage lower than that of the first semiconductor chip and lower than the voltage of the serial data externally applied.

3. The multi-chip-type semiconductor device according to claim 1, wherein the first semiconductor chip and the second semiconductor chip are controlled by serial data from a microcomputer.

4. A multi-chip-type semiconductor device comprising a first semiconductor chip and a second semiconductor chip connected to each other in a package, wherein

said first semiconductor chip comprises a voltage conversion circuit, a plurality of first inter-chip connection portions for connection to the second semiconductor chip, a first serial decoder, external connection terminals led out of the package, and external connection portions for connection to the external connection terminals,

said second semiconductor chip comprises a second internal circuit and a plurality of second inter-chip connection portions for connection to the first semiconductor chip,

bonding wires are provided for directly connecting the plurality of first inter-chip connection portions and the plurality of second inter-chip connection portions to each other, and

a control signal input through the external connection terminals is transmitted to the second internal circuit via the voltage conversion circuit, the first inter-chip connection portions and the second inter-chip connection portions.

5. The multi-chip-type semiconductor device according to claim 4, wherein a high voltage can be applied to the first semiconductor chip, and the second semiconductor chip has a withstand voltage lower than that of the first semiconductor chip and lower than the voltage of the control signal externally applied.

6. The multi-chip-type semiconductor device according to claim 4, wherein the first semiconductor chip and the second semiconductor chip are controlled by control signal from a microcomputer.